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The Utility of Fire and Forget Technology Demonstrated Using 1-meter Terrain

Past studies using high resolution terrain databases to evaluate the effectiveness of fire and forget missile technology have produced counterintuitive results. Fire and Forget technology no longer requires the antitank gunner to track the missile to the target. Rather, after target acquisition and seeker lock-on, the gunner fires the missile which flies to the target without further gunner interaction. The antitank crew then can take up a position of increased protection or displace to an alternate firing position. Furthermore with the requirement to guide the missile to the target removed, the terrain from which a missile shot can be made should be increased. This increased area for employment makes the enemy's ability to counter antitank fires more difficult by requiring more preparatory fires upon suspected antitank positions. To the infantry commander such the capability to use non-traditional antitank firing positions is significant and employing Fire and Forget systems should provide increased force survivability. Studies, however, have not produced results showing increased survivability.

This analysis examines the above issue by concentrating upon the terrain resolution within the simulation. By using a 1-meter terrain perspective view generator (PVNT), vehicle track segments are examined and precise terrain "maps" are produced showing terrain locations where an antitank system could engage the vehicle on that specific track segment. This process is then repeated to include all segments of a vehicle track. By comparing the results for current TOW2B to the TOW Fire and Forget systems, a measure of effectiveness reflecting the percentage of increase of employment area is computed The resulting employment "maps" highlight the increased terrain where a Fire and Forget system could be positioned. Various terrain sets were examined: Mediterranean-like valleys (Fort Hunter Liggett, California), desert (Yuma Proving Ground, Arizona) and heavily wooded (Camp Shelby, Mississippi). Although there was substantial variability among different terrains, the Fire and Forget system outperformed the TOW2B.

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